This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for reducing input/output activity when running a database query, comprising the steps of:

executing the query on a plurality of table entries in a table using a bitmap having a respective element associated with each table entry; and

concurrently with executing the query, generating the bitmap by initially setting a plurality of elements to an active value and selectably setting respective elements that are associated with entries that do not satisfy a portion of the query to an inactive value;

wherein executing the query includes accessing the bitmap before at least one element is set to an inactive value during generation of the bitmap to determine whether to retrieve a table entry among the plurality of table entries, wherein selectably setting respective elements that are associated with entries that do not satisfy the portion of the query to an inactive value includes setting a respective element associated with a first table entry that does not satisfy the portion of the query to the inactive value prior to retrieving the first table entry in connection with executing the query using the bitmap, and wherein executing the query includes avoiding retrieval of the first table entry when executing the query using the bitmap after the respective element associated with the first table entry is set to the inactive value.

2. (Original) The method according to claim 1, further comprising the step of:

avoiding retrieval of a table entry after its corresponding bitmap element is set to an inactive value.

3. (Original) The method according to claim 1, further comprising the steps of:

building an index over a column of the table; and

determining whether each table entry satisfies the portion of the query based on the index.

4. (Original) The method according to claim 3, further comprising the steps of:

scanning the table according to a first order when executing the query; and

scanning the index according to a second order when determining whether each table entry satisfies the portion of the query.

5. (Original) The method according to claim 1, further comprising the steps of:

retrieving a particular table entry having its corresponding bitmap element set to an active value; and

determining if the particular table entry satisfies the query.

6. (Original) The method according to claim 5, further comprising the step of:

returning, as part of a result set, the particular table entry if it satisfies the query.

7. (Currently Amended) A method for executing a query that evaluates one or more records of a table according to predetermined selection criteria, comprising the steps of:

initializing a bitmap wherein each element of the bitmap corresponds to a record of the table and each element is initialized to an active value;

running a first task that individually retrieves each of the one or more records from storage according to whether the corresponding element of the bitmap has an active value;

running, concurrently with the first task, a second task that updates the bitmap by setting to an inactive value the respective element of the bitmap corresponding to any record that does not satisfy at least a portion of the selection criteria, wherein the first and second tasks are associated with the same query; and

continuing to run the first task until all records from the table, having a corresponding active-value bitmap element, have been retrieved from storage; wherein the first task accesses the bitmap before at least one element is set to an inactive value by the second task to determine whether to retrieve a record from storage.

8. (Original) The method according to claim 7, wherein the step of running the first task includes the steps of:

determining if a retrieved record satisfies the selection criteria; and

returning, as part of a query result set, the retrieved record if the selection criteria is satisfied.

9. (Original) The method according to claim 7, wherein the step of running the second task includes the steps of:

scanning a column of the table using an index built over the column, wherein the portion of the selection criteria relates to record values within the column;

determining a set of records whose record values within the column do not satisfy the portion of the selection criteria; and

changing the respective corresponding bitmap element to an inactive value for each record within the set of records.

10. (Original) The method according to claim 7, wherein the step of running a first task includes the step of:

discarding any record having a corresponding bitmap element which has an inactive value, by not retrieving that record from storage.

11. (Original) The method according to claim 7, further comprising the step of:

optimizing a query plan for the query by labeling the query as a candidate for dynamic bitmap updating.

12. (Original) The method according to claim 11, further comprising the step of:

before initializing the bitmap and starting the first task and second task, determining if the query is labeled as a candidate for dynamic bitmap updating.

13. (Original) The method according to claim 9, wherein a first order in which the one or more records is retrieved differs from a second order in which the column of the table is scanned.

14. (Original) The method according to claim 7, further comprising the steps of:

collecting statistics related to performance of executing the query; and

generating a recommendation presented to a user for creating a permanent index based on the statistics.

15. (Currently Amended) A computer-readable medium bearing instructions for reducing input/output activity while executing a query, said instructions being arranged, upon execution thereof, to cause one or more processors to perform the steps of:

executing the query on a plurality of table entries in a table using a bitmap having a respective element associated with each table entry; and

concurrently with executing the query, generating the bitmap by initially setting a plurality of elements to an active value, and selectably setting respective elements that are associated with entries that do not satisfy a portion of the query to an inactive value;

wherein executing the query includes accessing the bitmap before at least one element is set to an inactive value during generation of the bitmap to determine whether to retrieve a table entry among the plurality of table entries, wherein selectably setting respective elements that are associated with entries that do not satisfy the portion of the query to an inactive value includes setting a respective element associated with a first table entry that does not satisfy the portion of the query to the inactive value prior to retrieving the first table entry in connection with executing the query using the bitmap, and wherein executing the query includes avoiding retrieval of the first table entry when executing the

query using the bitmap after the respective element associated with the first table entry is set to the inactive value.

16. (Original) The computer-readable medium according to claim 15, bearing additional instruction, said additional instructions being arranged, upon execution thereof, to cause one or more processors to perform the steps of:

avoiding retrieval of a table entry after its corresponding bitmap element is set to an inactive value.

17. (Original) The computer-readable medium according to claim 15, bearing additional instruction, said additional instructions being arranged, upon execution thereof, to cause one or more processors to perform the steps of:

building an index over a column of the table; and

determining whether each table entry satisfies the portion of the query based on the index.

18. (Original) The computer-readable medium according to claim 17, bearing further instruction, said further instructions being arranged, upon execution thereof, to cause one or more processors to perform the steps of:

scanning the table according to a first order when executing the query; and

scanning the index according to a second order when determining whether each table entry satisfies the portion of the query.

19. (Currently Amended) An apparatus for executing a query comprising:

at least one processor;

a memory coupled with the at least one processor; and

a database engine residing in the memory and executed by the at least one processor, the database engine configured to initialize each element of a bitmap, corresponding to a table, to an active value; retrieve records of the table according to the bitmap; and concurrently with retrieving the records, update individual

elements of the bitmap according to a portion of the query, wherein the database engine is configured to access the bitmap before at least one individual element of the bitmap has been updated to determine whether to retrieve a record of the table, wherein the database engine is configured to set a first individual element associated with a first record that does not satisfy the portion of the query to an inactive value without retrieving the first record, and wherein the database engine is configured to avoid retrieval of the first record when retrieving records of the table according to the bitmap after the first individual element associated with the first record is set to the inactive value.

20. (Original) The apparatus according to claim 19, wherein the bitmap includes a respective element for each record of the table.

21. (Original) The apparatus according to claim 20, wherein the database engine is further configured to analyze the retrieved records to determine if selection criteria of the query are met.

22. (Original) The apparatus according to claim 21, wherein the database engine is further configured to avoid an input/output operation for any record having a corresponding bitmap element set to an inactive value.

23. (Original) The apparatus according to claim 22, wherein the database engine is configured to use a pre-built index related to the portion of the query when updating individual elements of the bitmap.